648 /68 cont./ of the underground water level, which often results in the abandonment of a site, does not permit a costly installation. About ten years ago, a former sergeant-major of the Sahara corps settled at Tiguenouine, a small center 70 kilometers south of Tamanrasset; he quickly gave up his idea of farming and became a nomad. Another Frenchman, a retired soldier, nomadizes in the Tin-Zaouaten region; he leads a life like the Tuareg, and his herds prosper.

Officials reside at Tamanrasset, lodged in administration quarters which sometimes have a small garden for family use. The community maintains a large garden where experiments in farming and arboriculture are carried out.

241 The Tuareg, as we said, are the only landowners; let us now see how they utilize their lands. As in all countries under Moslem influence, the method of agriculture is the "khamassa," with certain local variations. The khammès usually is a hartani,/69/ a Negro originally from the Tidikelt or a freed slave.

The agricultural system in the Ahaggar is supported by the foggara, which should water six to eight gardens. The proprietor of the foggara, generally a Targui, engages one khammes per garden. He will look among the harratin of the village for gardeners who will come to terms with him. An
241 oral contract is made between the proprietor and the khammès,
675 before witnesses. This contract may be summarized thus:

The proprietor agrees, first of all, to provide the land, which he has rented from the amenokal. He must also provide his gardener with water from the foggara he has had dug, with a "mesaha" (hoe), and with the necessary seed. In addition, the proprietor must clear the land at his own expense and must see to the improvement of the soil. He must advance the hartani food in the amount of 60 guessa of millet per year.

In exchange, the khammès undertakes the work in the fields, the threshing, and the upkeep of the foggara.

As "salary" he collects a fifth of the harvest. He also receives the fallen and gleaned ears, the harvest from ten

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675 /69 cont./ "guemouns" /plots/ situated near the majen (clay basins), and the wheat and barley sown in the séguias /irrigation ditches/ which belong to him.

In addition, the wheat found mixed with the dust of the threshing ground belongs to him by right, as well as the staw and several vegetables that are grown. Lastly, if the flow of the foggara slackens and new wells must be dug upstream, the khammès is paid three guessa of wheat per well dug.

[692] In case of disputes between the proprietors and the khammès, the palavers are held in the presence of the chief of the tribe (on the Tuareg side) and the chief of the village (on the harratin side). The amenokal intervenes upon appeal, but rarely, for these contracts fixed by custom are, in general, scrupulously observed.

The Targui has limited confidence in the honesty of his khammès, an opinion often justified, for the hartani deliberately pushes over ears of grain so he may have them by his gleaning rights. The proprietor does not have the magnanimity of Boaz. Therefore, when harvest time comes, he installs himself /70/ and all his family near his garden in order to make sure that the operations are properly carried out. The khammès must furnish food for the Targui, a heavy burden for the former. That is the custom, which also holds that in case the Targui is prevented from coming, the hartani pays a due of 25 kilograms of wheat to guarantee this right of sojourn.

Another type of contract exists called "aril" in Tamashek and "nous" (half) in Arabic. The net harvest is divided into two equal parts, taking into account the following provisions:

The proprietor Targui must furnish the land rented from the amenokal, a foggara, and a hoe. He provides half of the seed and advances 25 kilograms of wheat, which will be paid back at harvest time; he pays for enriching the land (tiksal= virgin land). The gardener hartani, for his part, agrees to furnish half of the seed and one year of work.

241 675 /70 cont./ This /second/ contract system would appeal very much to the Tuareg, carefree by nature, improvident, and rarely possessing the necessary grain for the loans to the khammès. However, it is very little favored by the harratin, who prefer to have the advance of millet furnished by the proprietor under the first contract system, the right to the personal guemouns and to the gleanings, not counting the little daily thefts.

It is quite evident that these are Draconian contracts for the cultivators, who merely exist and are at the mercy of a bad harvest. The Targui may, thanks to his herds and to barter, survive several lean years, but the hartani cannot. It it not unusual to see the latter get through the period between the depletion of the winter reserves and the new wheat harvest by eating crushed date pits, young shoots of tahli, and sometimes even barley and wheat in the blade.

241 311 Land is seeded according to the amount of water available. When the output of the foggara is low, the cultivated area is restricted. It even happens, after several dry years, that the water table in the wadi shrinks to the point of disappearing. The gardens are then abandoned, the agricultural center deserted. The /71/ cultivators withdraw to a more favored village. When the rains bring up the water levels again, the dead centers may be worked once more.

241 The land is almost never manured in the Ahaggar. A system of preparing the land called "tiksal" in Tamashek is preferred. Each year the hartani gathers a clayey soil from a slope near the gardens. He carries this back, basket by basket, and spreads a thin layer on each guemoun. This virgin soil reinvigorates the cultivated land, which is quickly exhausted because of the irrigation; it contains almost no humus or limestone.

Sometimes, when the distance is not too great, the gardener brings the soil from an old root system of a dead fersig /tamarisk/ or tahla, the only humus to be found.

7:Nicolaisen E-5 (1951-1962) 1963 MS25 Tuareg MS25

appointed by the Tuareg garden owners and is rewarded by a garden of his own for his responsibility in supervising all co-operative work. The unit of agriculturists co-operating at the same *foggara* may or may not correspond to an extended family. The agriculturists co-operating on any large *foggara* irrigating ten or twelve gardens frequently represent two or three distinct families which are not linked to each other by kinship bonds. The cultivators of a *foggara* comprising nine gardens at Taṭhawhawt belong to three distinct, unrelated families. This is quite natural in view of the fact that contracts between the Tuareg and the cultivators are made individually.

There may also be no kinship bonds between the pastoral Tuareg who have gardens at the same foggara, and there are even Tuareg who own two or three gardens situated in widely separated river valleys of Ahaggar. But Tuareg garden owners of the same foggara frequently belong to the same tribe or even to the same tribal section. When a garden-owning Tuareg dies, his garden will generally pass to somebody within his family, but there seems to be no fixed rules governing the transference of gardens.

The individual contract between a Tuareg garden owner and his cultivator is made for a period of six months – the period of growth for wheat and barley. The agriculturist is responsible for all garden work, and the Tuareg garden owner has the following obligations:—

(1) To supply his cultivator with a hoe every year, or every two years in case a very good hoe is given.

(2) To pay for repairs of the *foggara* system, or for the digging of a new *foggara*. This payment is known as *almarsor* and consists of two kilos of cereals or dates every working day until water reaches the garden.

(3) To pay for the making of garden beds. This payment is known as *éhéré n egalab*, and is made only once as long as the garden remains on the same spot. When a garden is moved after a period of three or four years the payment must be made again. It varies with the size of the garden and the quality of its soil; in general it consists of 15–25 kilos of cereals.

Fig. 140. Millet (*énéllé*) of very high growth. It is said that this particular millet type was introduced to Ahaggar from the south – possibly from Ayr. Ahaggar, *Akl Azzi* Arabs.

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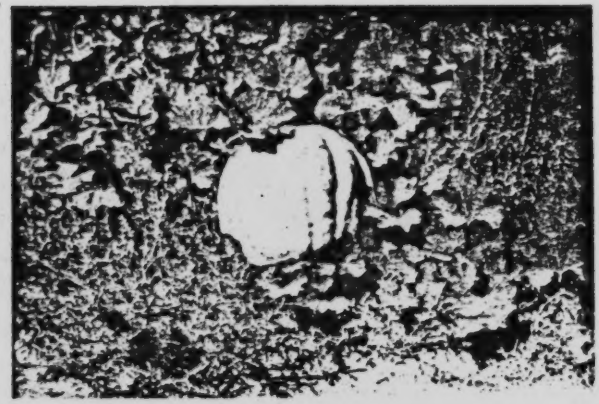

Fig. 141. The large gourd known as *kabuya* (*Cucurbita maxima*) growing close to the thorny fence (*afarag*) which term is also generally used to designate a garden. Ahaggar, *Akl Azzi* Arabs.

466 625 423 241 [171] [570] Tuareg garden owners have other obligations besides those listed under these three items, but these obligations vary with the systems of contract of which there are three. One system is known as *khamast* according to which the agriculturists gets only one fifth of the crops. This system is widely found in North Africa but has disappeared in Ahaggar some years ago. It is said that it was abolished by the *Amenukal* because it very frequently gave rise to disputes between Tuareg garden owners and their cultivators. It is now replaced by two other systems, the *tilt* system allowing one third of the crops to the cultivator, and the *aṛil* system according to which crops are divided equally between the owner and the cultivator. This last system is that almost exclusively used in Ahaggar nowadays.

To revert to Tuareg obligations towards their cultivators, these obligations, in addition to those mentioned above, are as follows:—

(4) To hand over an amount of seed-corn (*iéfest*) of wheat and barley according to the size of the garden plot and the system of contract. With a *khamast* agreement the Tuareg garden owner gives all seed-corn. With a *tilt* agreement half of the seed-corn is supplied by the owner, the other half by the cultivator who is then also allowed to cultivate a private garden. With an *aṛil* agreement half of the seed-corn is given by the garden owner, the other half by the cultivator who does not possess a private garden unless he is headman of a *foggara* (p. 196).

(5) To give an amount of food to the agriculturist during the cultivation period of six months. This payment is known as *temafok*, and is fixed at 75 kilos of millet, barley, or dates when cultivation is done according to the *aṛil* system, while 150 kilos are given for cultivation according to agreements of the two systems *tilt* and *khamast*.

[434] The net profit to an agriculturist who cultivates for a Tuareg garden owner is lower than that gained by an agriculturist cultivating exclusively for his own private use. This will be seen more clearly from the calculations below where a garden with an annual yield of 700 kilos wheat and barley is considered:—

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	Cultivator		*Tuareg Garden Owner*	
The khamast system	Receipts	Expenditure	Receipts	Expenditure
The *khamast* division	140 kg		560 kg	
Land rent		5 kg		5 kg
Yield of one garden bed to blacksmith		5 kg		5 kg
Seed-corn				50 kg
Food given to the cultivator	150 kg			150 kg
	290 kg	10 kg	560 kg	210 kg
Net profit	280 kg		350 kg	
The tilt system				
The tilt division	233 kg		466 kg	
Land rent		5 kg		5 kg
Yield of one garden bed to blacksmith		5 kg		5 kg
Seed-corn		25 kg		25 kg
Food given to the cultivator	150 kg			150 kg
	383 kg	35 kg	466 kg	185 kg
Net profit	348 kg		281 kg	
The aril system				
The *aril* division	350 kg		350 kg	
Land rent		5 kg		5 kg
Yield of one garden bed to blacksmith		5 kg		5 kg
Seed-corn		25 kg		25 kg
Food given to the cultivator	75 kg			75 kg
	425 kg	35 kg	350 kg	110 kg
Net profit	390 kg		240 kg	

A few notes should be added to these calculations of receipts and expenditure in the three systems. Thus the profit of the cultivator in all three systems is somewhat bigger than is indicated. The hoe is given by the Tuareg garden owner, who must also make certain payments for irrigation work and for the making of new garden beds as mentioned above. The garden owner's net profit in kilogrammes is consequently somewhat lower than indicated, but it should be mentioned that payments made by a Tuareg garden owner are hardly ever made in wheat and barley, but mainly in millet and dates which are less valuable, particularly so because the pastoral Tuareg acquire millet and dates at very low prices during their caravan expeditions (cf. p. 209 ff.). Therefore, the profit made by a Tuareg garden owner cannot so easily be given in kilogrammes of agricultural food products. It is evident that all three systems are profitable to the Tuareg, and it is clear that an agriculturist who cultivates a garden entirely on his own behalf is better off than an agriculturist who works for the Tuareg. It is also evident that to the agriculturist the *khamast* system is less profitable than the *tilt* system, which again is less profitable than the *aril* system. With the abolishment of the *khamast* system the agriculturists now